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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,037	07/30/2003	Ramachandra N. Pai	BEA920030015US1	7080
49056 7590 04/01/2009 LIEBERMAN & BRANDSDORFER, LLC 802 STILL CREEK LANE GAITHERSBURG, MD 20878				
EXAMINER				
CHANKONG, DOHIM				
ART UNIT		PAPER NUMBER		
2452				
MAIL DATE		DELIVERY MODE		
04/01/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/630,037

**Applicant(s)**

PAI, RAMACHANDRA N.

**Examiner**

DOHM CHANKONG

**Art Unit**

2452

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,5,7-10,12,14-16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7-10,12,14-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This action is in response to Applicant's amendment filed on 12/10/2008 and supplemental amendment filed on 3/26/2009. The former amendment added claims 19 and 20 and amended claims 1, 7, 9, 12, 14, and 18. The latter amendment added claims 1, 7, 9, 12, and 18. Claims 3, 4, 6, 11, 13, and 17 were previously cancelled. Accordingly, claims 1, 2, 5, 7-10, 12, 14-16, and 18-20 are presented for further examination.
2. Because this action contains a new § 101 rejection of claims 12 and 14-16 that was not necessitated by Applicant's amendment, this action is a non-final rejection.

### ***Response to Arguments***

3. Applicant's amendment of the independent claims overcome the inoperative rejection under § 101. That rejection is therefore withdrawn. However the § 101 rejection of claims 1, 2, 5, 7-10, and 18 for being directed to non-statutory subject matter is maintained. In response to this rejection, Applicant amended the independent claims to recite that "each vertex *represents* a single hardware component" (italics added). This amendment is insufficient to overcome the § 101 rejection for the following reasons.

Claims 1, 2, 5, and 18 were rejected because they were directed to mental steps. Claims 7-10 were rejected because they were directed to a system that comprised nothing more than software. Applicant's amendment fails to resolve either of these issues. The fact that the vertex may represent a hardware component does not mean that the vertex *is* a hardware component. Claims 1, 2, 5, and 18 remain directed to mental steps. Claims 7-10 remain directed to software

*per se* system. Neither of these fall within the categories defined under § 101 and therefore remain rejected.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1, 2, 5, and 18-20 are rejected under 35 U.S.C. §101 because the claimed invention is directed towards non-statutory subject matter. Based on new guidance from the Board of Patent Appeals and Interferences in the informative opinion, *In re Bilski* (and pending review by the Federal circuit), this action contains a new §101 rejection of claims 1, 2, 5, and 18 because the claims are directed towards mental steps. In *Bilski*, the Board found that the absence of any apparatus in the appellants' method claim was evidence that the claims did not transform physical subject matter as a machine inherently would. It is the current position of the PTO that a §101 method or process must (1) be tied to another statutory class (such as an apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing.

Here, claim 1 recites a five-step method for maximizing group membership. The method operates on vertices of a graph where the vertices may be "a computing node, components on a circuit board, division of points in a pattern, and partition of items." The §101 issue arises because each of the five steps may be carried out mentally. Whether the vertices are a computing node, components on a circuit board or points on a pattern, the algorithm does not actually transform any of those elements. The claim is merely directed to the algorithm for

finding a maximal graph and does not physically transform any subject matter to a different state or thing. Additionally, the claims are not tied to another statutory class.

5. Claims 7-10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims recite a "system" that comprises a "counter" and a graph. The use of the term "system" does not inherently mean that the claim is directed towards a machine. Only if at least one the claimed elements of the system is a physical part of a device can the system constitute a machine within the meaning of §101. There is no discussion in Applicant's specification of any hardware or physical elements that would have led one of ordinary skill in the to believe that the system is to be implemented as a machine. See also response to arguments above.

6. Claims 12 and 14-16 are rejected under 35 U.S.C. § 101 because the claims contain a judicial exception. *See MPEP §2106(IV)(C)*. While the claims are directed to an article that comprises a computer-readable recordable data storage medium, the claims are directed to a mathematical algorithm of updating connectivity counts, ordering vertices, and removing vertices from a graph. A mathematical algorithm is a claimed process that manipulates only numbers, abstract concepts or ideas, or signals representing any of the foregoing. *See MPEP § 2106.02*. The claims may be saved from statutory oblivion if they are directed to a practical application of the algorithm. *MPEP § 2106(IV)(C)(1)*. A claim is directed to a practical application when it either: (A) "transforms" an article or physical object to a different state or thing; or (B) otherwise produces a useful, concrete and tangible result. *MPEP § 2106(IV)(C)(2)*.

Here, Applicant's claims are merely directed to manipulating an abstract concept in the form of a vertex. As amended, the vertex only *represents* another object and therefore is simply an abstract concept. Dependent claim 16 further describes the vertex as merely a "division of points in a pattern" which is clearly an abstract concept. Nor are the claims directed to a practical application of the algorithm. The algorithm does not transform an article or physical object to a different state or thing. The algorithm simply results in a different graph from the original graph which is not a useful, tangible, or concrete result.

Moreover, "[o]ne may not patent a process that comprises every 'substantial practical application' of an abstract idea, because such a patent 'in practical effect would be a patent on the [abstract idea] itself.'" *MPEP § 2106(IV)(C)(3)*. In other words, a "computer disk that solely stores a mathematical formula is not directed to the type of subject matter eligible for patent protection." *Id.*

Claims 12 and 14-16 are merely directed to a storage medium that stores a mathematical formula. Applicant is therefore attempting to patent the algorithm itself and preempt the use of the algorithm. The claims recite, in the abstract, operating on vertices of a graph, with no real limits as to what the vertex could cover; allowing these claims would effectively cover every substantial application of the algorithm.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Both claims are rejected for lacking proper antecedent basis and for containing confusing claim language. Claim 19 lacks proper antecedent basis for "said noted vertices" because the preceding claim language only discloses noting a single removed vertex. Claim 20 lacks proper antecedent basis for "said noted cliques" because claim 19 only discloses noting vertices. Claim 20 is confusing because it references multiple cliques but the preceding claims only discuss a single clique. Claim 19 is confusing because it is not clear what is meant by "noting" a vertex. Appropriate clarification is required.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOHM CHANKONG whose telephone number is (571)272-3942. The examiner can normally be reached on Monday-Friday [8:30 AM to 4:30 PM].

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on 571.272.3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dohm Chankong/  
Examiner, Art Unit 2452